

Applicant : Robert B. Dopp et al.
Serial No. : 10/817,557
Filed : April 2, 2004
For : Air Cell with Improved Leakage Resistance

Art Unit : 1745
Examiner : Monique M. Wills

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REMARKS

Claims 1-54 remain in the application. Non-elected claims 15, 17, 46 and 47 have been withdrawn from consideration as being drawn to a nonelected species, there being no allowed generic or linking claim. Reconsideration of the application is respectfully requested, and rejoinder of claims 15, 17, 46 and 47 is requested upon allowance of a generic or linking claim.

In the Office action mailed January 25, 2008, claims 1-14, 16, 18-45 and 48-54 were rejected. The previous rejection of claims 1-14, 16, 18-45 and 48-54 under 35 USC § 112, first paragraph, was maintained, and claims 1-14, 16, 18-45 and 48-54 were also rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant disagrees with the rejections under 35 USC § 112, first paragraph and second paragraph, for the reasons set forth below.

Claims 1-14, 16, 18-45 and 48-54 were rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement because the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Each of independent claims 1, 39 and 54 describe a transformable component capable of transforming into an electrolyte sealing component, such as by swelling and moving towards the bottom of the can. The Examiner asserted that it is unclear as to how the air cell functions when the material transforms because the sealing component, which is disposed between the housing wall and oxygen reduction electrode, since the sealing component would seal the openings of the air inlet, and when the air inlet is blocked the battery cell cannot generate electricity. In the paper submitted on November 2, 2007, Applicant argued that under normal conditions, the cell can generate electricity before the transformable component transforms, as demonstrated in Example 5. The Examiner did not find this argument persuasive, because the example does not show an operable battery that has a transformable component disposed between the housing wall having one air inlet and the oxygen reduction electrode. The Examiner went on to explain that the claim language appears to imply that the transformable component covers the air inlet, which will be filled, leaving the battery inoperable once the component transforms.

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Example 5 discloses PR44 type button zinc-air cells made with transformable components (polyacrylate films, some of which were loaded with citric acid and/or polyvinyl alcohol) which were disposed between the air electrodes and the air inlets in the bottoms of the cathode cans. All cells operated to provide usable capacity on the Capacity Test. Example 7 discloses PR44 cells made with transformable components (PTFE film loaded with polyamide resins) between the air electrodes and the air inlets in the cans, and on the Capacity Test these cells also provided usable capacity. Therefore, Examples 5 and 7 show that cells made with a transformable component according to the present invention will function to generate electricity under normal conditions as intended.

Applicant believes that whether or not the battery cell is capable of generating electricity under abnormal conditions (e.g., due to cell defects, excessive gassing or exposure to abusive conditions), when the cell might otherwise leak, is not relevant to the enablement requirement of § 112, first paragraph. A cell that is leaking is generally considered unsuitable for continued use, and rendering such a cell unable to continue to generate electricity is not only not a problem, but it may actually be preferred. An object of the invention is to provide a cell with high discharge capacity and good high rate discharge characteristics (under "normal" conditions in which electrolyte does not pass around or through the air electrode) as well as improved electrolyte leakage characteristics (see page 4, lines 16-29), thereby reducing or preventing possible equipment damage or personal injury due to leakage. The present invention is similar to pressure relief vents and internal electrical disconnects in cells, designed to prevent cell explosions, fires, etc., even if operation of the vent or electrical disconnect renders the cell unsuitable for continued use. Examples of such pressure relief vents and electrical disconnects can be found in US 6,818,342 and US 6,524,741). The specification clearly discloses the electrochemical battery cell according to the present invention and the manner and process of making and using it such that the skilled artisan is able to make and use the invention without undue experimentation. The specification also shows that the invention works for its intended purpose, which is to reduce or prevent leakage or mitigate the effects of leakage, while still providing high discharge capacity and good high rate discharge characteristics under normal conditions. For these reasons, the rejection of claims 1-14, 16, 18-45 and 48-54 under 35 USC § 112, first paragraph is traversed.

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The Examiner rejected claims 1-14, 16, 18-45 and 48-54 under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention. The Examiner's reason was that the present claims relate to an extremely large number of possible transformable components, and the claims contain so many options or possible permutations and provisos that a lack of clarity and conciseness exist within the meaning of § 112 to such an extent as to render a meaningful search of the claims impossible.

Applicant submits that the rejection under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention is not proper. The essential inquiry pertaining to [the requirement for clarity and precision] is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity (MPEP 2173.02). If the scope of the claimed subject matter can be determined by one having ordinary skill in the art, a rejection as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention is not appropriate (MPEP § 706.03(d)). The claims do not contain terminology inconsistent with accepted meanings, relative terms, combinations of broader and narrower ranges/limitations in the same claim, lack of antecedent basis, literal translations from a foreign document, indefinite claim language, or modifiers of "means" lacking function.

In referring to a large number of options or possible permutations, the Examiner appears to be objecting to the breadth and/or number of the claims. However, the breadth of a claim is not to be equated with indefiniteness (*In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971)). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 USC § 112, second paragraph (MPEP 2173.04). Applicants have not given any such indication, and the only reason given for the rejection appears to be the breadth and/or number of claims. Where applicant presents an unreasonable number of claims which are repetitious and multiplied, the net result of which is to confuse rather than to clarify, rejection on undue multiplicity may be appropriate (MPEP 2173.05(n)).

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“Applicants should be allowed reasonable latitude in stating their claims in regard to number and phraseology employed” (*In re Chandler*, 319 F.2d 211, 225, 138 USPQ 138, 148 (CCPA 1963). The present application contains only 3 independent claims defining 3 aspects of the invention. The dependent claims are supported by the specification and serve to clarify the invention by identifying specific alternative embodiments, rather than to confuse or becloud definition in a maze of confusion.

For these reasons, Applicant believes the enablement requirements of 35 USC §112, first paragraph, are met by the specification and that the rejection of claims 1-14, 16, 18-45 and 48-54 has been traversed.

For the above reasons, Applicant believes that the application is in condition for allowance. Withdrawal of the rejections and allowance of claims 1-14, 16, 18-45 and 48-54 is requested. Because generic claims 1, 39 and 54 are allowable, rejoinder and allowance of withdrawn claims 15, 17, 46 and 47 is also requested.

Respectfully submitted,

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